

Cont
A1

No. 08/691,852, now Patent No. 5,956,484, filed August 1, 1996, which is a continuation-in-part of U.S. Patent Application No. 08/571,606, now Patent No. 6,219,032, filed December 13, 1995; 2) is a continuation-in-part of Application No. 08/970,953, now Patent No. 6,300,936, filed November 14, 1997; and 3) claims priority to U.S. Provisional patent application no. 60/073,518, filed February 3, 1998; the disclosures of which are all incorporated herein by reference.

✓ Replace the paragraph starting on Page 12, line 19, with:

A2

The hardware architecture described above is also described in co-pending U.S. patent 5,739,811, filed 11/28/95, the disclosure of which is incorporated herein by reference. The high level command protocol between the computer and the force feedback device is also described in U.S. patent 5,734,373, filed 12/1/95, the disclosure of which is incorporated herein by reference. Force feedback as implemented in a graphical user interface is described in U.S. patent application no. 08/571,606, now Patent No. 6,219,032, filed Dec. 13, 1995, and incorporated herein by reference.

✓ Replace the paragraph starting on Page 15, line 10, with:

A3

Transducer system 150 also preferably includes actuators 154 to transmit forces to mouse 36 in space, i.e., in two (or more) degrees of freedom of the user object. The bottom housing plate 157 of actuator 154a is rigidly coupled to ground member 132 (or grounded surface 124) which includes, e.g. a magnet, and a moving portion of actuator 154a (e.g. a wire coil) is integrated into the base member 134. The actuator 154a transmits rotational forces to base member 134 about axis A. The housing 157 of the grounded portion of actuator 154b is coupled to ground member 132 or ground surface 124 through the grounded housing of actuator 154b, and a moving portion (e.g. a coil) of actuator 154b is integrated into base member 138. Actuator 154b transmits rotational forces to link member 138 about axis A. The combination of these rotational forces about axis A allows forces to be transmitted to mouse 36 in all directions in the planar workspace provided by linkage 130 through the rotational interaction of the members of linkage 130. The operation of the electromagnetic actuators 154 is described in greater detail in Patent Nos. 6,100,874 and 6,166,723. In other embodiments, other types of actuators, such as electrical DC motors, can be used. A different embodiment of a force feedback device can include flexure members to allow movement in provided degrees of freedom.

Replace the paragraph starting on Page 18, line 5, with:

A4

Generic effects and authored effects are preferably composed from a basic set of stock force effects. The stock effects include vector forces, vibrations, springs, textures, and others, as described in Patent Nos. 5,825,308; 6,219,032; 5,959,613; 6,147,674; and 6,078,308, all incorporated by